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THE NEW YORK
SCIENTIFIC AMERICAN:
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☞ *See Advertisement on last page.*

THE COMING OF WINTER.

BY T. B. READ.

Autumn's sighing, moaning dying,
Clouds are flying on like steeds;
While the shadows o'er the meadows
Walk like widows deck'd in weeds.

Red leaves trailing, fall unfailing,
Dropping, sailing from the wood,
That unpliant, stands defiant,
Like a giant dropping blood.

Winds are swelling, round our dwelling,
All day telling us their wo,
And at vesper, frosts go crisper,
As they whisper of the snow.

From th' unseen land, frozen inland,
Down from Greenland, Winter glides,
Shedding lightness, like the brightness
When moon-whiteness fills the tides.

Now bright pleasure's sparkling measures
With rare treasures overflow,
With this gladness comes what sadness!
Oh, what madness, on, what wo!

Even merit may inherit
Some bare garret or the ground;
Or a worse ill beg a morsel
At some door sill, like a hound!

Storms are trailing, winds are wailing,
Howling, railing, at each door.
'Midst such trailing, howling, railing,
List the wailing of the poor!

CHEER UP!

Cheer up, for grief is of the night,
But morning with its rosy light
Dispels the cloud of sorrow;
If shadowy doubts obscure the day,
Remember they will flee away;
The sky may smile to-morrow.

What though the past be thickly strown
With faded flowers—thy path o'er-grown
With thorns of woe and sadness?
Yet sigh not always—murmur not,
There's promise in thy future lot,
That speaks of hope and gladness.

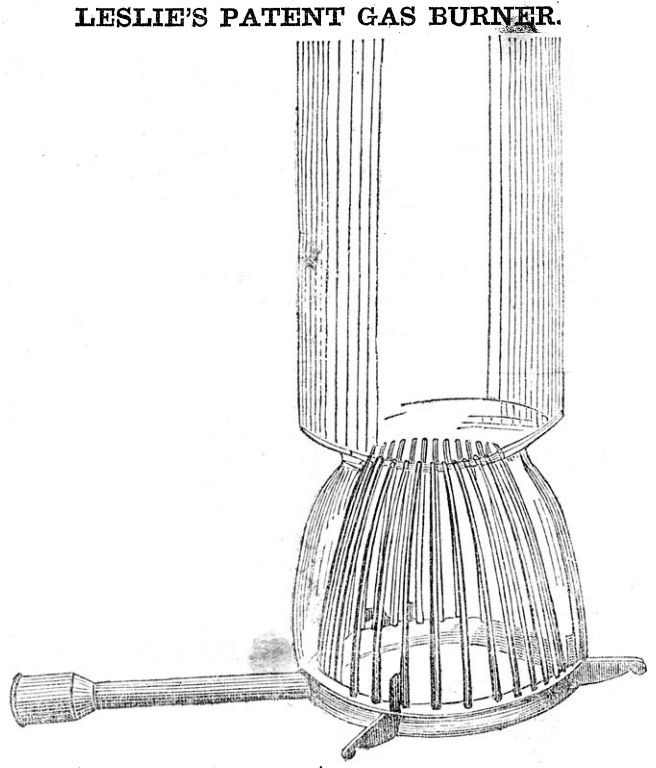
True, life is but a vale of tears,
And hope is often linked with fears.
Yet why be ever weeping?
There's many a bright spot on the earth,
And many a joy of noble birth
The future hath in keeping.

A cloud upon thy brow may throw
New shadows on thy brother's woe,
And make life's journey weary;
A *smile*, a holy calmness given,
Will light thy brother's path to Heaven,
And cheer the pilgrim weary.

Cheer up, then, for our guide-stay here
Will soon disclose a holier sphere,
Where care assails us never
Man hath a hope beyond the tomb,
In Heaven's congenial air to bloom;
That hope shall live forever.

A codfish, eight feet long and twenty four years old was taken at Albany a few days since,—from *the steeple of an old church.*

LESLIE'S PATENT GAS BURNER.



This elegant apparatus produces from the ordinary gas, a light of much more brilliancy than given out by the common burners.

The gas, being contained in and issuing from every separate tube, causes a current of air to play around each; and therefore when ignited the supply of oxygen is sufficient for the entire and perfect combustion of all the gas that issues from each separate tube. The result is a cylinder of flame of great purity, diffusing its light without the slightest shadow.

Besides the advantage of a better light, this invention prevents the nuisance of smoke depositing on the ceiling and furniture. It may be attached to any ordinary gas fittings, and will probably be soon introduced in this city.

Raising the Great Britain.

The [illegible] of the Commercial gives the following, as the plan to be adopted in raising this vessel, by Mr. Mackintosh, an American. "The lower decks will be suitably staged and space occupied by the machinery &c., will be filled with empty casks below the line of notation, which will render her sufficiently buoyant. An embankment of stones will be raised up to high water mark, securing the concave vessels with their mouths toward the ship, in which are placed waterproof bags filled with suitable powder, the contents of which being ignited by the galvanic battery, its expansive force will heave up a mass of nearly 2,000 tons of water, which, directed toward the ship by the concave vessels; will form an artificial wave, rolling from the embankment, upon which the ship is carried from ber position and placed in deep water.—Large masses of water are heaved up at intervals by the ignition of the powder in the bags, by which the ship is kept in motion, at the will of the operator, while steam-tugs are so placed astern as to assist in getting her to a place of safety. The mode of rendering her buoyant is so simple as to require no explanation. From the powder being placed in loose bags, the water is only heaved up by ignition, and its action on the ship will not be greater than what she has often been subject to in crossing the Atlantic. The displacement of the Great Britian when loaded is three thousand tons. By the means proposed above, a mass of water from two to five thousand tons may be raised and propelled in the right direction by the concave vessels; this is more than sufficient to float and propel the Great Britian, were she twice the size, and is a safe and certain plan of saving the ship in a few days Abutments for the powder might be made with Dr. Pott's tubes, which can be easily sunk in the sand."

Brevity.

A Quaker at Liverpool once sent a letter to a correspondent asking the news, by a simple note of interrogation, thus, '?.' His friend replied in the same vein, '0.'

A Hard Rub for Truth.

Old Parson M., of Worcester county, sometimes used to be absent on a missionary tour. Once on a time, having just returned from one of these excursions, he found his congregation quite drowsey, and, wishing to wake the m up he broke off in the midst of his sermon, and began to tell them what he had seen in York State, Among other wonders, he had seen monstrous great mosquitoes, so large that many of them would weigh a pound! The people were by this time wide awake. "Yes," and moreover, continued the parson, "they are known to climb trees and bark!" The next day one of the deacons ealled upon him, telling him that many of his brethren were much scandalized by the big stories he told the day before.

"What stories?" says Parson M.

"Why sir, you said that musquitoes in York State were so large that many of them would weigh a pound."

"Well, rejoined the minister, "I do really think that a *great* many of them *would* weigh a pound."

"But," continued the deacon, "you also said they would climb up trees and bark!"

"Well sir," said Parson M., "as to the climbing of trees, I have seen them do that, havn't you deacon?"

"Oh, yes!"

"Well," how could they climb up on the trees and not climb on the bark?"

The deacon was of course nonplussed.

Weeding ones Friends.

"I weeded my friends," said an old eccentric friend, "by hanging a piece of stair carpet out of my first floor window, with a broker's announcement attached to it. It had the desired effect. It was like firing a gun near a pigeon house; they all forsook the building at the first report and I have not had occasion to use the extra flaps of my dining table since."

It is a notorious fact that the blood taken from the arm of a man given to drinking will take fire when a lighted taper is applied to it.

A LIST OF PATENTS

Issued from the 10th of November to the 28th of November, 1846, inclusive.

To William Cundell of Paterson, N. J. for improvement in machinery for making guards for cap spinners.—Nov. 10, 1846.

To Hugh K. Wagner, of St. Louis, Missouri, for improvement in Dry Docks.—Nov. 10.

To Thomas Rowand, of Philadelphia, Penn. for improvement in Tide Mills.—Nov. 10.

To Hiram Munger, of Chicopee, Mass. for improvement in Water Wheels.—Nov 10.

To Theodore R. Timby, of Cato Four Corners, N. Y. for improvement in Water Wheels.—Nov. 10, 1846.

To Loomis & Lockwoad, J. Lamb, of Berlin, Conn., for improvement in Rotary Shears.—Nov. 10, 1846.

To Joseph Pray, & C. Stafford, of East Killingly, Conn. for improvement in Drawing Frames.—Nov. 12, 1846.

To Chas. T. Jackson, & Wm. T. G. Morton, of Boston, Mass. for improvement in surgical operations (said Jackson having assigned his right to said Wm. T. G. Morton.) Nov. 12.

To James W. Carter, of Boston, Mass. for improvement in Coffee Roasters —Nov. 12.

To Ira Avery, of Tunkhannock, Penn. for improvement in Washing Machine.—Nov. 12.

To A. H. Beschermarm, of New-York, for improvement in Handling Hides.—Nov. 14.

To George W. D. Culp, of Allenville, Indiana, for improvement in Cider Mills.—Nov. 14, 1846.

To Elisha Hale, of Newark, New-Jersey, for improvement in Water Wheels.—Nov. 14.

To Melvin McKay, of Lyons, N. Y. for improvement in Tuyers.—Nov. 14.

To Daniel C. McMillen, of Persia, N. Y. for improvement in Tuyers.—Nov. 14.

To Samuel Hall, of New York, for improvement in machinery for cutting sheet metal into oval shapes.—Nov. 18.

To Asa Barber, of Stephentown, N. Y., for improvement in machinery for cutting Flocks.—Ante-dated May 18, 1846.

To Luke S. Rand, of Townshend, Vermont, for improvement in Straw Cutters.—Nov. 18.

To Isaac Lard, of Ashley, Missouri, for improvement in Mowing Machines.—Nov. 20.

To John T. Denniston, of Lynde, N. Y. for improvement in Harness Saddles.—Nov. 20.

To Andrew J. Cook, of Delphi, Indiana, for improvement in Mowing Machine.—Nov. 20.

To Livingston, Roggin & Adams, of Pittsburg, Pa., for improvement in fastening Latches.—Nov. 24.

To Payson, Burch & Davis, of Eaton Village, N. Y. for improvement in Cooking Stoves.—Nov. 24.

To Thomas J. Sloan, of New York, for improvement in machinery for cutting the thread of pointed Screws.—Nov. 24.

To John Holmes and Abner West, of Tisbury, Mass., for improvement in Harpoons.—Nov. 24.

To Wm. Bulkley and Philip Norton, of Berlin, Conn., for improvement in Circular Shears.—Nov. 28.

To Adolph F. Ahrens, of Philadelphia, Pa., for improvement in Trusses.—Nov. 28.

DESIGNS-

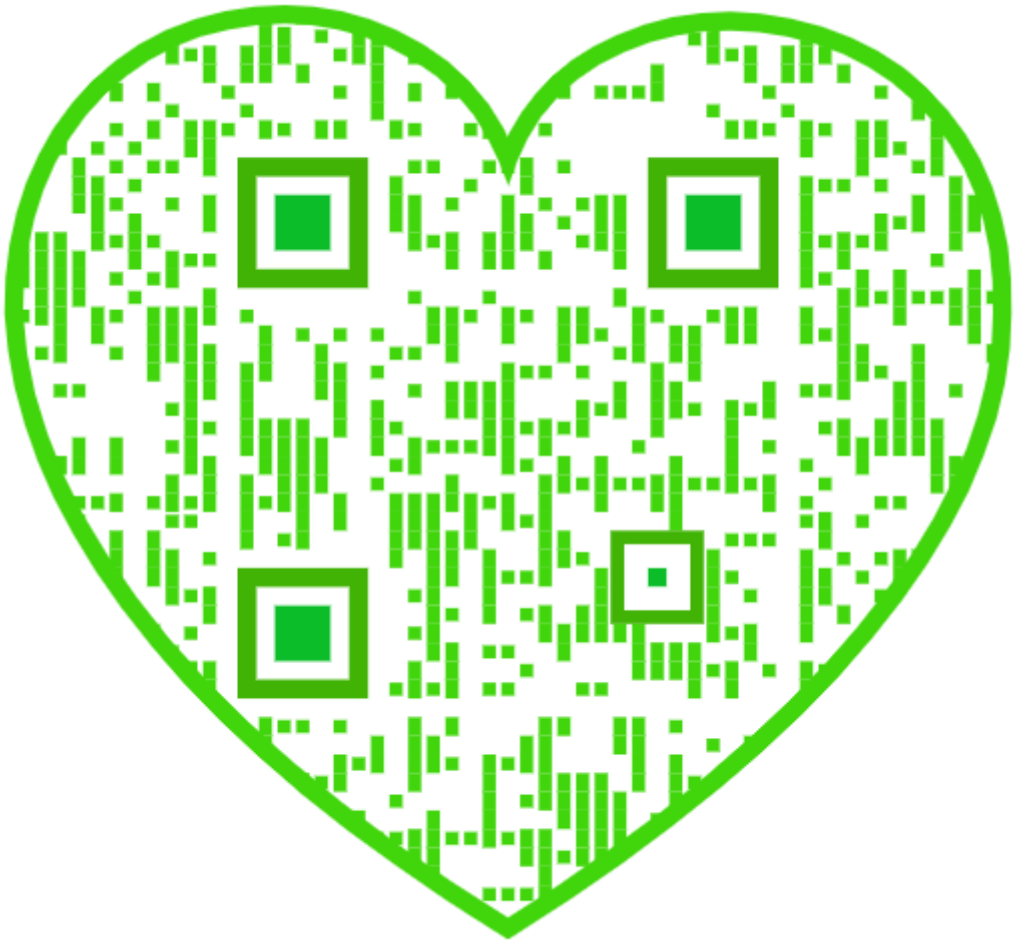
To John S. and Merritt Peckham, of Utica, N. Y. for Design for Stove. Patented 3d Oct., 1846.

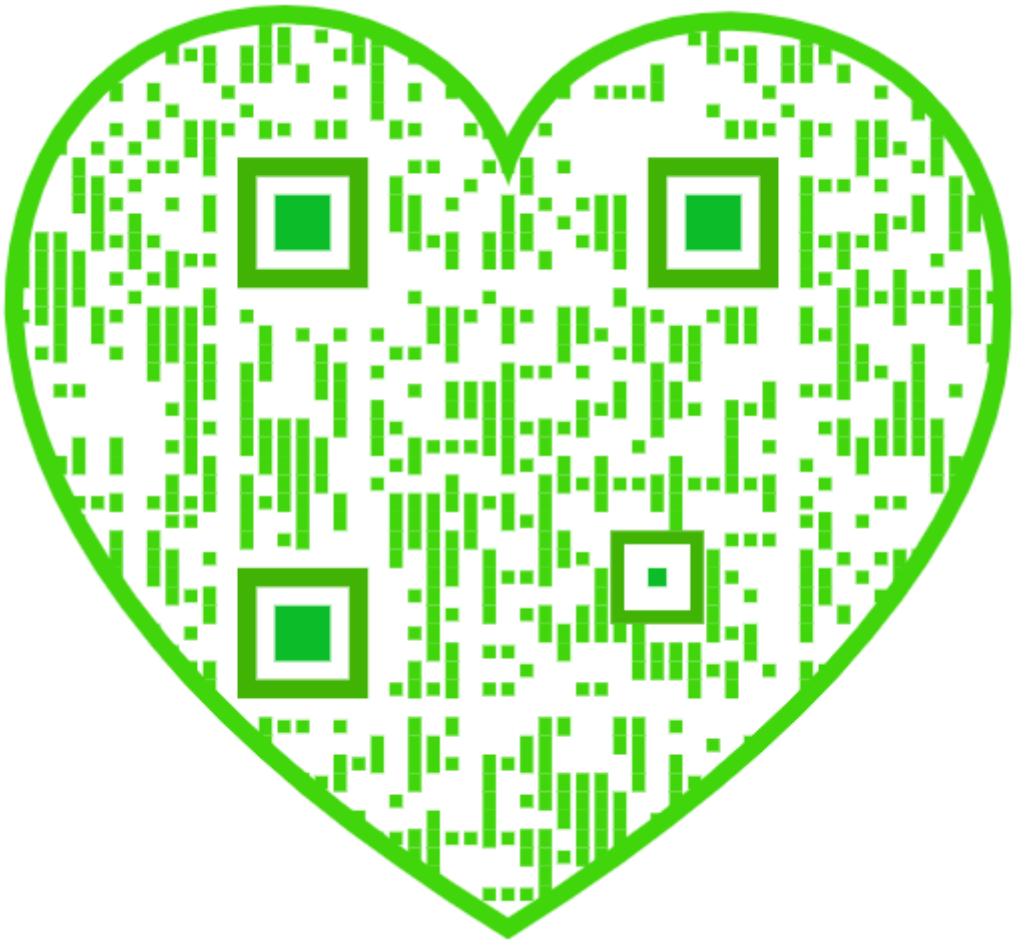
To John Dutton, of Village Green, Pa., for Design for Ornamental Fountain. Patented 3d Oct., 1846.

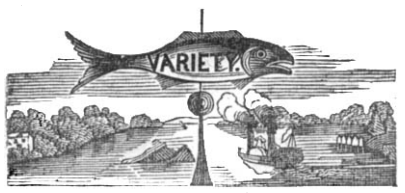
To Sherman S. Jewitt and Francis H. Root, of Buffalo, N. Y., for Design for Stove. Patented 3d Oct., 1846.

To Samuel Hanley, of Troy, N. Q., for Design for Stoves. (Assigned to A. T. Dunham, B. H. Sage, Eber Jones and John B. Chollar, of Troy, N. Y.) Patented 10th Oct., 1846.

To Peter Low of Troy, N, Y., for Design for Cooking Stoves. Patented 10th Oct. 1846.







My Husband who uses Tobacco.

He sits in his chair from morning till night,
'Tis smoke, chew, smoke,
He rises at dawn his pipe to light,
Goes puffing and chewing with all his might,
Till the hour of sleep. 'Tis his delight
To smoke, chew, smoke.

The quid *goes in* when his pipe *goes out.*
'Tis chew, chew, chew,
Now, a cloud of smoke pours from his throat,
Then, his mouth sends a constant stream afloat
Sufficient to carry a mill or a boat,
'Tis chew, chew, chew.

He sits all day in a smoke or fog,
'Tis puff, puff, puff,
He growls at his wife, the cat and the dog,
He covers with filth the carpet and rug,
And his only answer when I give him a jog,
Is puff, puff, puff.

Such a room I'm sure, was ne'er seen before,
'Tis pipes, quids, pipes;
Quids are scattered from door to door,
With pipe stems the mantel covered o'er,
Pig tail and fine cut strewed o'er the floor,
'Tis pipes, quid, pipes.

The house all o'er, from end to end,
Is smoke, smoke, smoke,
In whatever room my way I wend;
If I take his old clothes to patch and mend
Ungrateful perfumes will ever ascend
Of smoke, smoke, smoke.

At home or abroad, afar or near,
'Tis smoke, chew, smoke;
His mouth is stuffed from ear to ear,
Or puffiing the stump of a pipe so dear,
And his days will end I verily fear,
In smoke, smoke, smoke.

Give and Take.

"Gin me a kiss, my charming Sal,"
A lover said to a blue eyed gal.
"I shan't," says she, "you lazy elf,
Screw up your lips, and help yourself!"

The Armistice Justifiable.

The armistice entered into between Generals Taylor and Ampudia, it is found, will allow no more than time for the former to make the necessary arrangements for further operations. The armistice was condemned by many, but when all the circumstances are considered, it was the best Gen. Taylor could do. Monterey could not have been taken without further bloodshed, and to avoid which was the ostensible object of Gen. T. Taken as it was, Monterey, on account of its vast amount of public property, in arms and munitions captured, is of immense importance. The whole country, from the Rio Grande to the Sierra Madre, is now in the hands of the Americans. It is represented by letter writers as a fine tract of country, as large as Italy, and bears a strong resemblance to that delightful country, in point of soil and scenery. Its present population is said to be about five hundred thousand persons.

The Magnetic Telegraph.

We are informed that there in a company organized to extend the Telegraph West from Buffalo. "The Erie and Michigan Telegraph Company" propose to extend their line from Buffalo, N. Y., to Milwaukie, Wisconsin, passing through Dunkirk, Erie, Cleaveland, Huron, Sandusky, Toledo, Detroit, and Chicago. Stock is to be issued equal to two hundred and fifty dollars per mile, adding thereto twenty thousand dollars as a reserve fund, the shares to be fifty dollars each. The line is to be constructed of strong iron cords.

A line from Buffalo to Toronto, has been commenced. The distance will be about one hundred miles.

Thayer's Bridge.

Our notice thereof was inadvertently omitted last week. A drawing of it may be seen at this office.

Navigation of the Illinois.

An editor in Illinois says: In passing down the Illinois river in a little stern wheel boat called the Agatha, which craft drew about 16 inches of water, we were much amused at the novelty of the thing when, in approaching Beardstown, the engine was stopped and given a "lick back," for the boat to wait for a Hoosier team, that was fording the stream, to pass. It is no uncommon occurence, we are told now, for the captain of a boat, of a dark night, to *wade ahead with a lantern in his hand, to point out the channel!* This saves the necessity of throwing the lead, the pilot singing out "knee deep" and all is safe.

A Curious Point of Theory.

M. Bousingault of France has recently decided that sulphur is contained in electricity. We are not disposed to dispute this point, but think it may open the way for the discovery that carbon is contained in light, and oxygen in sound. Who knows what may not be obtained from these elements? It is an established point that oxygen constituted the principle basis of acids, and it is obvious that sounds—especially those of words—sometimes appear *rather tart.*

Enterprise in Newark, N. J.

Messrs Johnson, Paterson & Co., of Newark, are about to establish the manufacture of velvet tapestry, or tapestry carpeting, a new article, and but little known in this country. It was originally patented in England by a Scotchman who established a factory near Edinburgh, but was not able to supply the demand for it even at large profits in the old country.

A Tavern Governor.

Governor Chittenden, while Governor of the Green Mountain empire, still continued to keep the same tavern that he kept for many years before. One evening a wagoner drove up and accosted him thus: "Governor Chittenden, as chief magistrate of Vermont, I render you all due homage; but as Landlord Chittenden, I'll thank you to turn out my horses."

History of Virginia.

Howison, in his history of Virginia, states the fact not generally known, that the first slave introduced in that colony was in August, 1620, when a Dutch man-of-war sailed up the James River, landed twenty negroes from the African coast, which they sold to the planters who were most anxious to avail themselves of this class of laborers.

Sunday Elections.

By the Constitution of Louisiana, the 1st of November is appointed for the election of constable in the different parishes? and this year the day fell on Sunday. Only two of the parishes opened the polls on that day, however.

Preaching Abolished.

At a recent meeting of the citizens of New-Orleans it was resolved that all negro preaching and negro teaching is dangerous to the happiness, quiet and safety of the slave population, and the city authorities were requested to prevent a continuance of these evils.

Voyage to Oregon.

Two missionaries with their families—seven in all, sailed on Thursday week for Oregon, expecting to reach their destination in July next. Whitney's railroad will shorten the distance to about six days travel—less than a day for a month.

General Scott.

The application of General Scott for a distinct command in Mexico has been granted, and he proceeds with an ample force to Tampico to open a direct communication with San Luis Potosi. He proceeded in the steamer Southerner on Saturday.

Post-Office Negligence.

We have received a letter from *Amherst*, which requires an answer; but we cannot make out by the post mark (post-office stamp) nor otherwise whether it is from Massachusetts, New-Hampshire, or some other state.

Wonderful Increase.

Since the erection of the rail road, which is six years, the town of Wilmington, N. C., has increased its population from 3000 to 9000.

Very Benevolent.

A gentleman of excellent character but moderate circumstances hearing that an immensely rich man was very much bothered with the care af his estate, has generously offered to take it off his hands, relieving him of all care and anxiety, and paying him as much as he now speads for his support as long as he lives.

Mr. Whitney at Louis.

The bold projector of the Pacific Railroad, has been recently illustrating his plans to the citizens of Louisville, Ky., and St. Louis, Mo., at both of which cities his reception has been highly encouraging. Large numbers of the citizens of the first standing have evinced a readiness to memorialize Congress on the subject

Temperance at Brighton.

At a special town meeting recently held at Brighton, the great cattle mart of Massachusetts, and which has been notorious for intemperance, it was voted (more than six to one) that no intoxicating liquors shall in future be sold; and the select men were authorised to enforce the law.

Horrible Remorse.

Moslen who is in prison at Philadelphia, for the murder of his wife, is in a frightful state of mind, and fancies he sees his murdered wife with her gashed throat standing before him. He has attempted to destroy himself, but was prevented, and he begs for his immediate execution. Think of this ye rumsellers.

The Wonder-exciting Cotton.

We have heard nothing recently on the subject of gun cotton, except that it is very liable to explode spontaneously after having been kept a few days, and no means of preserving it in safety has been discovered. So that is exploded.

Want of Foresight.

It is related of a certain farmer, that having occasion to put a head into a hogshead, he placed his boy inside to hold the head up to its place, while he drove on the hoops to secure it. Of course he had to start the hoops again to liberate the boy.

Great Boy.

A boy of 14 is exhibited at Utica, nearly seven feet high, and growing rapidly. He now weighs 175 pounds.

It is amusing to observe to what an extent the business of raising extraordinary children for exhibition, is carried on in this country.

Chinese Bricks.

A cargo of 15,000 bricks has been conveyed to Liverpool from Shanghae, in China, in a vessel called the Annio. They are said to be of a quality which will render them applicable to general purposes.

Mails from the seat of War.

The mail received at New Orleans from the seat of war, after the capture of Monterey, contained 14,000 letters, and the ordinary mail on that route ranges from 6000 to 8000. This fact indicates a very intelligent army.

Dispatch.

The canal boat *Dispatch*, the timbers of which was two weeks previous in the forest, arrived last week from Rochester with a cargo of 836 barrels of flour. She is appropriately named.

Bangor Lumber.

The quantity of sawed lumber surveyed this season will amount to about one hundred and fifty million feet. Short lumber brings higher prices now than for several years past.

Boston Waterworks.

The contract for the large 30 inch pipes, for bringing the water from Long Pond, has been given to a Mr. Kemble of West Point Foundry, at the rate of $47,50 per ton.

Spot on the Sun.

There is said to be an immense solar spot, about 30,000 miles in diameter, now visible between the sun's centre and his eastern limb. We have not found time to look at it.

Business at Pittsburgh.

On the 18th ult. there were at Pittsburgh, twenty-eight steamboats, and on the 21st about the same number, not including the new boats unfinished, nor those undergoing repairs.

TO CORRESPONDENTS.

Agreeable to request of "R. S. L.," we would state that there is no similarity between the crank described in our 4th number, and the one alluded to in the "Commissioner's Reports." We examined the latter before it was patented and can give a description if required.

"J. H. of L."—The waterwheel mentioned costs $75—requires 100 inches water under 9 feet head—made of cast iron;—30 inches diameter, horizontal;—already set up—only requires connecting;—the most economical in use.

"J. S. of R." (on the same subject.)—Under 30 feet head, 30 inches gate for 8 horse-powers;—diameter, 30 inches—turned after it is cast.

"L. A."—Answer in full in our next.

"L. M. of A."—There is no machine of the kind in use that will interfere or prevent your procuring a patent. Models as well as specifications and drawings are furnished at this office.

"E. A. of S. R."—We shall present an illustration of the wind-wheel of which you enquire, in next number.

"E. of N. B."—On a further examination of your invention, we cannot think you have much experience in the business, and will find your machine difficult to manage, though it may answer in the most favorable ground.

"N. R. M"—Yes; if you use John Does' patented invention, you become liable for damages, notwithstanding your claim to the combination.

2. We agree with you on the subject of the wheels of locomotives.

3. Your plan of awater wheel was patented about twenty years since by a Western Virginian, whose name we do not remember. A similar plan has since be used as a wind-wheel.

Other correspondent will be answered in our next.

The ship Aretas, which was launched at Boston last week, is coppered with the products of the ore from the shores of Lake Superior. The copper was rolled at the Revere foundry, and was furnished by the Pittsburg Company.

A shovel of coals held over varnished furniture, will take out white spots. Care should be taken not to hold the coals near enough to scorch, and the place should be rubbed with flannel while warm.

Miss Harriet Martineau is about to leave England again on a long, uncertain travel—to Egypt, and perhaps to visit some of the Asiatic countries.

A young Miss of New Bedford, Mass., has been required to pay *twenty dollars* for refusing to marry a suitor by the name of Himes, after having encouraged his visits.

An exchange enquires, which of these United States is destined to have the honor of being the first one redeemed from the curse of the rum-traffic?

An iron church, the entire cost of which was but little more than £1000, was recently sent from Scotland to Jamaica, as a specimen of Iron architecture.

The enterprise of Pittsburg is not diminished by misfortunes. No less than 2500 buildings have been erected within the last ten months.

The new census of Cincinnati shows a population of about 65,000, of which only 2128 are colored people.

There is *not* one distillery in the state of Delaware, instead of *but* one, as the papers have had it. All honor to little Delaware!

An incorrigible toper at Boston, recently entreated to be sent to prison as the only means of escaping the temptations of groggeries.

$2,000,000 have been invested in the erection of new buildings in the city of Troy, N. Y., during the past season.

Thomas W. Dorr has been nominated in Cranston, to represent the Western Congressional district of Rhode Island.

The telegraph line between this city and Boston will require one hundred tons of wire.

Faith Illustrated.

Several years since, being at a small seaport in Massachusetts, one of these Easterly storms came on which so often prove fatal to vessels and their crews on that coast. The wind had blown strongly from the Northeast for a day or two; and as it increased to a gale, fears were entertained for the safety of a fine ship, which had been from the commencemeut of the North-easter lying off and on in the bay, apparently without any decision on the part of her officers which way to direct her course, and who had once or twice refused the offer of a pilot.

On the morning of the Sabbath, many an old weather-beaten tar was seen standing on the highest point of land in the place, looking anxiously at her through his glass; and the mothers listened with trembling to his remarks on the apparently doomed vessel. She was completely land locked, as the sailors say, (that is, surrounded by land,) except in the direction from which the wind blew; as between her and the shore, extensive sand banks intervened, her destruction was inevitable unless she could make the harbor.

At length a number of resolute men, perfectly acquainted with the intricate navigation of the bay and harbor, put off in a small schooner, determined, if possible, to bring her into port. A tremendous sea was rolling in the bay, and as the little vessel made her way out of the harbor, the scene became one of deep and exciting interest. Now lifted up on the top of a dark wave she seemed trembling on the verge of destruction; then plunging into the trough of the sea, was lost from our view, not even the tops of her masts being visible, though probably twenty feet high; a landsman would exclaim, "she has gone to the bottom." Thus alternately rising and sinking, she at length reached the ship, hailed and tendered a pilot, which was again refused. Irritated by the refusal, the skipper put his little vessel about, and stood in for the harbor, when a gun was discharged from the laboring vessel, and the signal for a pilot run up to her mast-head.

The schooner was laid to the wind, and as the ship came up he was directed to follow in their wake until within range of the light-house, where another sea would allow them to run along side and put a pilot on board. In a few minutes the vessels came side to side; passing each other, the pilot springing into the ship's chains, was soon upon her deck.

The mysterious movements of the vessel were explained. She had taken a pilot some days before, who was ignorant of his duty, and the crew aware of his incompetency, were almost in a state of mutiny. When first hailed from the schooner the captain was below, but hearing the false pilot return the hail, went on deck, and deposing him of his trust, at once reversed his answer by firing the signal gun.

The new pilot having made the necessary inquiries about working the ship, requested the captain and his trustiest man to take the wheel; gave orders for the stations of the men, and charged the captain on the peril of his ship, not to change her course a hand-breadth but by his order. His port and bearing were those of a man confident in his knowledge and ability to save the vessel; and as the sailors winked at each other and said, "That is none of your land-sharks," it was evident that confidence and hope were reviving within them.

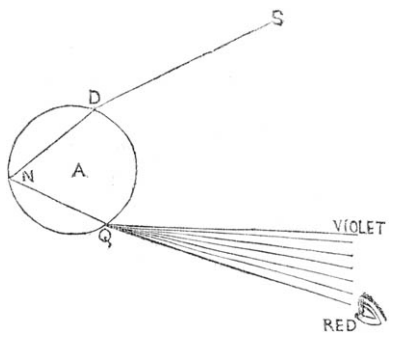
All the canvas she could bear was now spread to the gale, and while the silence of death reigned on board, she took her way on the larboard tack, directly toward the foaming breakers. On, on she flew, until it seemed from her proximity to those breakers, that her destruction seemed inevitable. "Shall I put her about?" shouted the captain, in tones indicative of intense excitement. "Steady," was the calm reply of the pilot, when the sea was boiling like a cauldron under her bows. In another moment the same calm, bold voice pronounced the order "About ship," and she turned her head from the breakers, and stood boldly off on the other tack.

"He knows what he is about," said the captain to the man at his side. "He is an old salt, a sailor every yarn of him," was the language of the seamen one to another, and the trembling passengers began to hope. The ship now neared two sunken rocks, the places of which were marked by the angry breaking and boiling of the sea: and as she seemed driving directly on them, "Full and steady," was pronounced in tones of calm authority by the pilot, who stood with folded arms in the ship's bows, the water drenching him completely as it broke over her bulwarks. She passed safely between them; the order for turning on the other tack was given, and again she stood towards the fearful breakers. Nearer and nearer she came and still no order from the pilot, who stood like a statue, calm and unmoved amidst the raging elements.—The vessel labored hard, as the broken, foaming waves roared around her, and seemed just on the verge of striking, when "About ship" in a voice like thunder, rose above the fury of the tempest. Again she stood upon the starboard tack, and soon entered the harbor and cast anchor in safety. One hour later she could not have been rescued, for by the time she reached her anchorage no vessel could have carried a rag of sail in the open bay.—Ship and crew, and passengers, more than one hundred in all, must have perished. When the order was given to "back the foretopsail, and let go the anchor," a scene ensued which baffles the description of a painter or poet.—The captain sprung from the wheel, and caught the pilot in his arms; the sailors and passengers crowded around. Some hung upon his neck, others embraced his knees, and tears streamed down the faces of old seamen, who had weathered many a storm, and braved untold dangers. All were pressing forward, if only to grasp the hand of their deliverer in token of gratitude. And now for the application.

The ship's crew had faith in their pilot. He came out of the very harbor into which they sought entrance. Of course he *knew* the way.

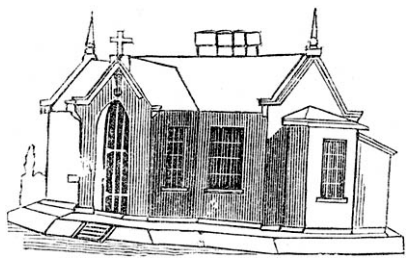
Their faith amounted to confidence.—They gave up the ship to his direction. It was an obedient confidence. They did not say—"He will save us," and sit down indolently and neglect his orders. The helm was turned, the sails were trimmed and every rope loosened or tightened as he directed. Nor did they disobey, though sometimes apparently rushing into the jaws of destruction.—*Baptist Reg.*

Theory of the Rainbow.

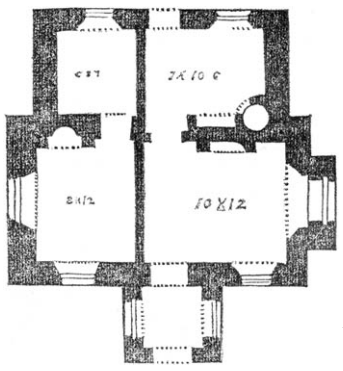


We have explained in a former number the refrangibility of light, and its decomposition thereby, in consequence of the difference of refrangibility of different colors. The phenomenon of the rainbow is never produced by a mere mist, but by falling drops of rain, each of which reflect different colors according to the angle which they form with the direction of the sun, and that of the eye of the beholder. In producing this effect, the ray of light in passing from the sun, is subjectod in each individual rain-drop, to two refractions and one reflection, as illustrated in the diagram, in which A represents the rain drop, and S the direction of the sun. The ray encounters the drop at D, from which point it is refracted to N, whence it is reflected to Q, and thence refracted in different directions according to the different refrangibility of the various colors of which it is composed. We would not say that the representation in the cut is perfectly correct, because the decomposition of the ray must evidently commence at the first point of refraction, D, though the divergence of the different colors from that point would be too minute to be conveniently represented. From the position in which the eye is represented, the reflection of light from the rain-drop would appear red; but as the drop descends the apparent color changes to orange, yellow, green, blue, indigo and violet in succession; and the same effect being produced by a horizontal as well as a vertical obliquity, and the multiplicity of the drops and their minute reflections being apparently blended, the phenomenon of the parti-colored arch is produced, as often seen in a retiring shower, or in the spray of a waterfall.

ARCHITECTURE.



We here present another design for a unique fancy cottage, and one which while it appears somewhat antiquated in its general style, is arranged for much convenience in proportion to its size. Its 10 by 12 parlor appears to be tolerably well lighted, while its 7 by 10 kitchen and 8 by 12 dining room—or if you please, library—appear peculiarly attracting at this season, when there are so many indications of the approach of cold weather, and the northwest winds are saucily intruding at every ar ture, and inviting their companion, Jack Frost, into diverse premises where neither of them are in any wise welcome.



Ancient use of Prussic Acid.

The bitter almond contains the constituents of Prussic acid and a peculiar volatile oil resembling the peach-blossom in its odor: both are developed when the almond is bruised and brought in contact with water. When the bitter almond, therefore, is masticated, and receives moisture in the mouth and stomach, the Prussic acid then formed operates as a powerful sedative on the nervous system, and renders the body less susceptible of the influence of excitants, consequently of wine. It forms, as it were, the balance in the opposite scale, and preserves the equilibrium, between the sinking, which would result from its use were no wine taken, and the intoxication that would follow an excess of wine were not the bitter almonds eaten. Plutarch informs us, that the sons of the physician of the emperor Tiberius knew this fact; and though inveterate topers, yet they kept themselves sober by eating bitter almonds.—*Philosophy of Magic.*

A Western Story.

It is not unfrequently the case that extravagant statements are not only more extensively copied, but more readily believed than plain matters of fact. Although the following has not the qualifying accompaniment of the name, title, residence and connections of the author, yet we can assure our readers that it is none the less true on account of this omission; and if they will be so accommodating as to swallow and believe this, we will for their edification look out for and publish all the *facts* we can find of the same character.

A man living near Grand River, Michigan, says that being in the woods one day he was so annoyed by mosquitoes that he took refuge under an inverted potash kettle. His first emotion of joy at his happy deliverance and secure asylum were hardly over, when the mosquitoes, having found him, began to drive their probosces through the kettle; fortunately he had a hammer in his pocket, and he clenched them down as fast as they came through, until, at length such a nest of them were fastened to the poor man's domicil, that they rose and flew away with it, leaving him shelterless.

Dry goods traders of New Haven close their stores at 8 o'clock in the evening.

The Problem.

NORFOLK, Nov. 23, 1846.

Mr. Editor.

The problem in my last week's paper I think I can solve. If the sloop is sailing at the rate of 600 feet per minute, the ball, evidently, must be going at the same rate, as also the air confined in the hollow mast. Such being the case, and terrestrial gravity operating on all falling bodies, they tend downwards towards the centre of the earth in straight lines from the point where they are let fall, and as free motion is straight, the ball must fall exactly to the centre of the mast.

It would make no difference whether the sloop was in motion, or at rest, for the ball having the same motion, as the vessel, must fall to the same point below. VIRGINIA.

The foregoing is the only answer we have received to the problem proposed in number 9; and this answer is not correct, as we shall proceed to show. If the vessel was sailing on a straight plane, the ball would indeed strike the bottom at the centre of the hollow mast precisely, because the horizontal momentum of the ball would carry it forward during its descent, with the same velocity with which the vessel was sailing. But when it is considered that the surface of the ocean is convex and not a straight plane, it will be seen that the mast head is actually moving faster than the hull moves through the water. This difference of motion would amount to 300 feet in 25,000 miles or thereabouts. The time required for the descent of the ball would be 2.5 seconds, as is ascertained by the following rule: Divide the square root of the space fallen through by 4, and the quotient will be the time occupied in the descent. Then as 60 seconds are to 600 feet, so are 2.5 seconds to 25 feet; the distance sailed during the descent of the ball. Again, as 132,000,000 (the number of feet in 25,000 miles) is to 300 so is 25 to 000068 inch. Therefore the ball would strike the bottom 68-1,000,000ths of an inch ahead of the centre of the mast.

P. S. Since the foregoing was in type, we have received several answers similar to the above—all incorrect.

The Slave Character.

We copy the following from the St. Louis Reveille, in which the writer, in endeavoring to illustrate the comparative happiness of the slaves, inadvertently elevates the character of that class of people decidedly above that of their lords and masters.

"An Illinois *volunteer*, from Springfield, named John Tefft, returned to this port on one of the New Orleans boats on Sunday week.—He had been discharged because of his physical debility, he having received an injury on one of his legs, and being otherwise unfitted for service by sickness. In this state, on their way up, he lay helplessly stretched out on one of the deck berths, receiving but little attention until they passed the mouth of the Arkansas river, where, in the night, an old negro woman came on board, evidently a run-away slave. She was not noticed until she commenced to cook and supply the wants of the suffering volunteer. Others on board were *surprised* at her interest for him, and expressing themselves so, the old negro answered them that "De man who bin fightin' for his country mussint be let die like a dog, if I can gib him any help." On the arrival of the boat at this port the old negro woman was consigned to the care of an officer and conveyed to jail for safe keeping until the boat returned. The volunteer, in the mean time, remained in his berth. On Thursday when the boat was about to start, the run-away was conveyed down to place her on board, and passing the levee, they encountered the sick and helpless soldier seated against some freight. He had lain on board the boat from Sunday until Thursday and then was carried off and seated upon the levee. The old negro women stopped when she saw him, and untying the corner of an old handkerchief in which was folded up two dollars, she took out *one*—half of her whole hoard—and placed it in his hands. "God bless you, massa," said she—"you berry poorly treated for killin' yourself for your country," and shaking his hand, she departed to her bondage, satisfied that her lot was better than that of a discharged soldier of the republic.—The poor fellow wept as he parted from the kind hearted slave."

NEW INVENTIONS.

Propelling Canal Boats.

An English paper reports the patent of a mode of propelling boats on canals by means of a central steam engine which causes two rollers or drums, fixed in bearings at opposite ends of the vessel, to revolve; these are alternately employed to wind up a wire rope, either laid at the bottom of the canal attached to moorings or fixed posts at the side.

The introduction of this mode on the Erie canal in this state, was contemplated and proposed some years since, but very properly and prudently abandoned in consideration of the insurmountable difficulties attending it. A similar, but much better plan has been recently submitted to us by a correspondent, Mr. Arthur Prentiss of Wellsboro, in which a rope or chain extending to any distance on the bottom of the canal and secured at the ends, is made to pass between the drums attached to the boat and connected with a steam engine on board. But even in this plan, feasible though it evidently is to some extent, we could not give him much encouragement, in consideration of the apparent difficulties in managing it, especially in passing curves; and that the plan has no novelty, having been proposed by others long since. But since canals are doomed to be so entirely superseded in a short time by rail roads, we can attach but little importance to any improvement in that line, however judicious or ingenious the invention.

New Invention in Rail Road Machinery.

A considerable improvement has just been effected in the application of a propelling power to carriages on railways, by an officer in Vienne. The invention consists in making the advance of a whole train quite independent of the adhesion of the locomotive's wheels to the rail on which it moves, and by conveying the propelling power of the engine to the axles of all the carriages—thus making their advance depend on their own adhesion. Each carriage becomes thus a locomotive, distinguished from the real locomotive only by the circumstanc that the motive power is not independently applied, but is imparted to it by the engine-carriage. The whole train is thus enabled to ascend any rise that may occur above the level of the railroad which the engine, if alone would be able to ascend.

Improvement in Boot Trees.

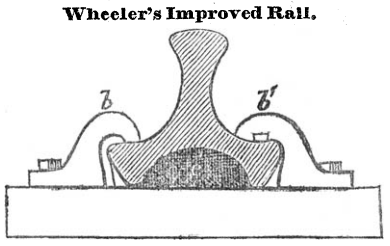
[Reported for the Scientific American by Z. C. Robbins, Mechanical Engineer, and Attorney for procuring Patents, Washington, D. C.]

Jonathan Russell, Philadelphia, July 4th, 1846.—The claim in this case, refers to, and is wholly dependent on the drawings. The object of the invention is to stretch a boot or shoe in all their different measures, by means of two set screws operated from the top of the tree. The trees are hollow; constructed of the usual number of parts, with the addition of a vibrating sole piece. The sole piece is connected to the hollow shoe piece, by means of a hinge joint near its centre; (constructed by a pin passing through loops on the upper side of the sole piece, and having its ends secured in the side of the shoe piece.) The upper front part of the shoe piece is perforated with apertures; the front part of the sole piece has small screw apertures for the reception of button headed screws, which can be projected through the apertures in the shoe piece by pressing down the rear end or heel of the sole piece; and thus stretch a boot or shoe at the ball, or any other part of the front of the foot The sole piece is vibrated by a screw rod passing through the leg of the tree, and pressing on the rear end of the sole piece,

A boot or shoe can be stretched at the instep or small measure, by detaching the button headed screws from the sole piece, and pressing down the heel of the vibrating sole piece.

A lever is inserted into the back piece of the tree having a projecting point near its centre, which bears against the wedge piece inserted between the front and back piece of the leg of the tree. The upper end of the lever is attached to, and is operated by, a horizontal set screw, entering the rear side of the top or the back piece of the tree. By pressing the top of the lever inwards the lower end will be forced outwards, thus stretching the boot at the heel measure.

Wheeler's Improved Rail.



This rail, of which a transverse section is shown in the cut, has been patented in England by Charles Wheeler, of Speenhamland, and is so constructed as to present three different surfaces, each of which may be occasionally placed upward and exposed to the action of the wheels: so that as one surface is worn, another can be turned up, which is as good as a new rail. It is secured to the ties, binders or sill by dogs *b b*, which are secured by bolts on each side. It rests on an iron segment *c*, and may on this account be distinguished by title of the saddle-rail. It can probably be afforded nearly as cheap at the T or H rail, and we see no reason why it should not succeed.

Improvement in Locomotives.

Messrs Stephenson & Howe have introduced in England a new and powerful engine, the improvement of which consists in the application of three steam cylinders, two of which are of the same diameter and capacity, and both are equal in capacity to the third. The pistons of all three cylinders move in the same direction; the large cylinder is placed exactly in the longitudinal central line of the engine, and the other two on each side at equal distances from it. The piston of the centre cylinder drives a crank on the axle of the impelling wheels, and the pistons of the two smaller cylinders are connected with crank-pins fixed on the outside of the wheels; the crank being at right angles with the crank pins. The intention of this arrangement is to neutralize any tendency that the oblique action of the connecting rods on their crank-pins may have to produce a lateral vibration on the supporting springs of a locomotive when travelling very rapidly.

The following are claims of inventors to new inventions recently patented, but of which we can give no description.

BY SEDGEWICK & BROOKS.

Oct. 3d, 1846.

Improvement in Fruit Gatherers.

Claim: The combination of the elastic fingers and sliding ring, whether constructed precisely in the manner described or other mode substantially the same. Also a pair of shears or cutters attached to the instrument on the top or otherwise placed, for the purpose of cutting off the stem of the fruit if desired, said shears being closed by the closing of the elastic fingers. Also, the flexible hose for conducting the fruit, in combination with the apparatus for gathering it.

BY EDDY & TAPLIN.

3d Oct., 1846.

Improvement in Threshing Machines.

Claim: the mode of inserting the teeth in the cylinder to threshing machines in combination with the manner of making the threshing cylinder in several sections of cast iron heads.

BY ADAM C. CONDE.

3d Oct., 1846.

Improvement in Cooking Stoves.

Claim: the particular manner of arranging the heating flues in front of, between and behind the ovens, in combination with the flues for carrying off the gaseous products of combustion.

BY HENRY M. PAINE.

3d Oct., 1846.

Improvement in Glass Lenses.

Claim 1st: the combination of the furnace and fusing oven. 2d: the construction of the curvator, with the guides. 3d: the process by which any required parabolic form or curvature may be given to the Lens.

BY JAMES M. WINSLOW.

3d Oct., 1846.

Improvement in Lath Cutting Machines.

Claim: the manner of arranging the bearings of the feed roller in plates fastened to the outside of the central posts, in combination with the revolving pointed feed roller, eccentric racks and revolving pinions, for raising and feeding the log to the knives.

BY WILLIAM RYLANDER.

Oct. 3d, 1846.

Improvement in Straw Cutters.

Claim: The knife constructed in the manner and in combination with the manner of working the same, so that it shall cut down across the box with a diagonal drawing stroke.

BY GEORGE MICHIELS.

Oct. 3d, 1846.

Improvement in making Sugar.

Claim—the manner of preparing the canes or saccharine plants, treating them and extracting the sugar by dissolution, the same consisting in cutting the canes or plants transversely through their saccharine cells and into very thin slices, immersing them in hot water, and rendering insoluble and inert during the process of dissolution such chemical substances of the cane as would otherwise exert injurious influence or chemical action upon the saccharine matters. He will also claim the use of Oxalate of Alumina, for the purpose of exciting the necessary chemical action upon the aforesaid combination of syrup, chlorophyle, and the superabundance of lime, in order to remove these two substances, and particularly the lime that extraneous chemical matter used to render inert those substances which would otherwise prove injurious to the sugar during the process of its dissolution from the cane.

BY BENJAMIN BEBBITT.

Oct. 14th, 1846.

Improvement in machinery for trimming Brushes.

Claim: The application of the two edged knife, constructed and fixed to direct and act in conjunction with the vibrating knives and gauge guides adopted to the form of the brush, when employed for the purpose of trimming the face of the brushes.

BY HOWLET & WALKER.

Oct. 14th, 1846.

Improvement in preparing Grain for flouring.

Claim: The method of toughening the hulls of wheat and other grains, preparatory to grinding, by the application of steam.

BY JACKSON & JUDSON.

Oct. 17th, 1846.

Improvement in Bell machinery for Hotels.

Claim: The combination of the drops with the tumblers, drop levers and slides.

BY ROSS WINANS.

Oct, 14th, 1846.

Improvement in Locomotive Carriages.

Claim: The employment of wheels with chilled cast iron flanches, in combination with an engine having six or eight driving wheels, with axles parallel with each other, and accommodating itself to curves and turn-outs, by any of the devices or modes described for that purpose, and having the power applied to all the axles by connecting rods and cranks.

BY FOSTER & JONES.

Oct. 17th, 1846.

Improvement in Threshing machines.

Claim: The operation of the teeth in the cylinder, for the purpose of removing the straw from the drum, each row by its own gravity, sliding in the grooves, project the teeth far enough to catch the straw, which by its revolution is brought up far enough over the cylinder, when they retire by their own gravity, and the straw is thrown from the machine.

BY NICHOLAS LAMPMAN.

Oct. 17th, 1846.

Improvement in Hay and Cotton Presses.

Claim: The method of forming the connection between the windlass and the ends of the progressive levers by passing the chains or ropes, by which they are operated, around the rollers that run on the two rails, the treads of the roller and the pullies around which the chains or ropes pass, being of equal diameters.

BY JOSIAH C. CARLISLE.

Oct. 21st. 1846.

Improvement in machinery for dressing Cloth.

Claim—the machine for dressing and polishing cloth, that is the combination of the emery cylinder, regulating cylinder, moistening cylinder, and cylinder brush, and rollers with their vibrating bars, and screws for pressing the cloth against the above named cylinders and brush. Likewise the water box constructed with a cloth moistener between its lower edges, and screws for pressing one side of the box toward the other, in combination with the moistening cylinder covered with cloth.

BY DAVID HINMAN.

Oct. 24th 1846.

Improvement in Pumps for raising water.

Claim—connecting all the joints of a double cylinder force pump, so as to hold them firmly together by means of one key.

BY JACKSON & MORTON.

Nov. 12th, 1846.

Improvement in Surgical operations, (said Jackson having assigned his right to said Morton.)

What we claim by our invention is the means by which we are enabled to effect the highly important improvement in surgical operations, viz: by combining therewith the application of ether or the vapor thereof.

BY IRA AVERY.

Nov. 12th, 1846.

Improvement in Washing machines.

What I claim is the combination of the conical fluted roller with the tub.

Artesian Well.

We alluded a week or two since to the attempt which was making at East Boston to sink an Artesian well. The process was by boring a sufficient depth to obtain a supply of water for the accommodation of the citizens upon the island—the population of which is so rapidly increasing in numbers. The operator has abandoned the common earth auger and has invented a cast iron *tube* about 10 feet long and 8 inches in diameter. It is armed at the end with two prodigiously strong chisels and just above them is an ingeniously devised valve. At the other extremity is a wrought iron handle, fastened to which is a stout linked iron chain to raise it up and down. When in action it operates upon the principle of a common chopping knife so familiar in mince pie manipulations. The engine raises it and then lets it fall like the perpendicular movement of the dasher in the obsolete method of churning butter. As the bits of stone or other materials accumulate every time the massive tube drops they are forced up into the tube and retained. Finally, when enough has been chopped to fill the cylinder of the drill, the name given to it, the engine draws it to the surface to be emptied. The cost of the one Mr. Higgins is laboring with was $600. The Boston Transcript gives the following account in relation to this invention:—

"Before resorting to this unique contrivance at all, an ordinary well was dug 140 feet to a stratum of hard, compact gravel, interspersed with water-worn stones of various sizes. On this Mr. Higgins set a cast iron tube of 10 inches diameter, and another on top of that, secured by water tight joints, and so on to the very outlet above ground. This long, ponderous cylinder is carefully braced up on the outside all the way, to keep it exactly perpendicular, and within it the mighty battering ram is let down and set in motion against the realm of Pluto. As fast as the hole was deepened the weight of the superincumbent pipe pressed down farther, paring the sides as it ground along. All accumulations from that source with its own chips were secured by the valve. After passing through 10 feet of the mixture described, the instrument struck a hard, blue slate stone, through which Mr Higgins urged his way at the average rate of 6 feet a day for 145 feet. Next he came upon a bed of talc of a greenish gray color, greasy to the touch, one variety being recognised among tailors as French chalk, and used for marking on cloth the course of the shears. Finally, on Saturday evening last, the cutter had penetrated 9 feet into that stratum, making the entire depth at this date 303 feet. The tube rests on the slate by which it is sustained and water soft and agreeable in flavor rises to the height of 200 feet; probably it comes from between the seams and fractures of the rock, since none can be possibly forced in laterally.—*R. R. Journal.*

NEW YORK, DECEMBER 5, 1846.

New Jersey Railroads.

We have seen some recent notices of the railroad between this city and Philadelphia, in which it is represented as being in good order and well managed by men of intelligence and skill. We are right glad to hear of such improvement and reform ; for the last time we travelled on this road,—some three months since,—we were disgusted with the awkwardness of both the construction and management of the road. For example, when we were met by the return train, the engineer had to back the train nearly half a mile to find a *turn out*, and then both trains were required to run past the turnout to give the return train a chance to *back into it*, to give us a chance to pass : for all the turnouts being constructed with an entrance at one end only,—instead of having a switch at each end as is the case on all common-sense railroads,—the trains had invariably to run past, and then back in. If these and other provokables are corrected, we congratulate the travelling public on the occasion.

The Niagara Courier.

This very intelligent and "wide awake" paper, introduces by some well-drawn compliments, (for which it has our thanks) an expression of regret that we should have misled the public by treating the subject of the "gun cotton" in a manner less grave than its importance deserved. Well, suppose we "acknowledge the corn ;" we should nevertheless like to know whether the editor of the Courier has been able to swallow the well authenticated *fact* that a leaden ball discharged from a musket at the Treasury Buildings at Washington penetrated the solid granite to the depth of an inch or more ! It is now confidently asserted that explosive cotton is a common every day concern ; that it has been known long ago ; that sawdust or ground straw will explode just as well, and lastly, that the entire utility of explosive cotton, sawdust &c. is exploded on account of the impossibility of securing it from spontaneous explosion. It is rather difficult to give ready credence to all the reports of explosive cotton, after all the intelligence obtained.

A Long Bridge.

A bridge is now nearly finished, which extends across the Delaware river, at Narrowsburg, Pa., a distance of *two hundred and sixty feet*, by a single span, and without support of check braces at the ends. This bridge is constructed on the plan invented by Mr. George W. Thayer, of Springfield, Mass., and which has in many places taken the preference over other kinds of timber bridges. It is 22 feet wide, with 20 feet posts ; its entire elevation above the water is 55 feet :—constructed of white hemlock timber, and is the longest span of bridge in the United States.

Imley's Cast Iron Rails.

Several thousand feet of cast iron rails of peculiar and permanent construction have been laid down on the Harlem railroad and are highly approved by most of the practical engineers and scientific men who have examined them. This rail has been invented and introduced by Mr. — Imley of this city, and is secured to a longitudinal sill in such a manner that it could not be displaced, even if it were broken into short pieces. The cost does not exceed one half of that of a wrought iron rail of equal strength.

Tremendous Blast.

A shaft was sunk with drills to the depth of fifty feet, a few weeks since, in a rock near Londonderry in Ireland, and a cavity or chamber was made at the bottom of the shaft which was charged with 2,400 lbs. of powder. It was ignited by the ordinary method, producing an explosion by which a quantity of rock estimated at 30,000 tons was thrown out and broken into manageable fragments.

The first American Ocean Steamship.

The New-York ocean steam ship now building at Westervelt and Mackay's ship yard, is intended as the first in the line of ocean steam ships to run between New-York and Bremen via Cowes, in the employment of the Post Office department. She is called the Washington, is of 1750 tons, custom house measurement, which is equal to about 2350 tons carpenter measurement. Her frame is well seasoned white oak ; her timbers are pieces 22 feet in length, sided 12 inches, moulded 20 inches, and very close together. All the crooks are such as grew with the timber, and none of it is cut across the grain. Her keel and kelson are of great solidity, forming a mass seven feet in thickness, and bolted throughout with heavy copper bolts. There are four kelsons to form the bed of the engine, running fore and aft, each 36 inches at the bottom, and 26 inches above, and 4 feet 3 inches high. There are, in order to strengthen her, bilge kelsons running fore and aft, 16 inches square. The length of the keel is 220 feet—of the upper deck, 245 ; the breadth of the beam is 39 feet, and the depth of the hold 31 feet and a half.—She is planked up inside and out with 6 inch white oak plank, except across the timber heads, where the plank is to be eight inches ; and what seems to us indispensable to the safety of all sea going steam ships, she is to have a complete flush deck from stem to stern, so that if a heavy sea be shipped, it must run off, as there are no openings into which it can pour and thus endanger the safety of the vessel.

The Washington is to be equipped with two marine engines, now constructing by Stillman, Allen & Co., of 72-inch cylinder and 10 feet stroke ; the wheels are to have forty feet diameter, and it is intended that they shall, when pushed, make 18 revolutions. Her cylinders, furnishing 20 inches of steam will be equal to 2000 horse power.

She will have an unbroken cabin saloon of 80 feet, which is to be furnished in the most tasteful and brightest of all styles, varnished white and gold. The main cabin will furnish 200 berths—not settees, nor cots, nor occasional substitutes, but ample berths in convenient and roomy state-rooms. She will have a second class cabin forward, with 100 berths—no less comfortable, though not so luxuriously furnished as the main one.

Her whole cost afloat and ready to receive her mails and passengers, will not reach $250,000. The Mississippi and Missouri war steam ships, (the one built in Philadelphia, the other here, by the government,) each cost, we believe, close on $700,000, and they were not so large as the Washington, and by no means we suspect so strong.

The Government, it is known, have made a contract with Mr. E Mills for four ocean steam ships, in which to transport the mails to Bremen, touching, coming and going, at Cowes. The contract is to last for five years, and the price is *one hundred thousand dollars per annum.*

The Washington is the first of the four, and she will be ready to commence her trips in March next. As soon as she is launched, which will probably be early in January, the keel of another ship of like dimensions is to be laid, and the four are to be completed in succession—so that each may be rendered more perfect by the experience of those that precede her.—*R. R. Jour.*

An Incident of the War.

One wounded soldier says, "I beheld not far from me, a villianous looking Rancheros armed with an American sergeant's short sword, dispatching a wounded American soldier, whose body he had robbed—the next he came to was a Mexican, whom he served the same way; thus I looked on while he murderously slew four."

A Resolute Girl.

A young lady, dressed in male apparel, lately started on foot from Vermont, in order to see her uncle in Pittsburgh, Pa., for the purpose af asking his assistance for her father, who had been formerly in affluent circumstances, but who, having met with misfortune, was at the time lying in a Vermont jail, for another person's debt.

The Bomb Cannon.

The Boston Post gives the following account of conclusive experiments made in the vicinity of that city recently with the mammoth bomb cannon ;

"The experiments with the new 12-inch cannon, recently cast at Alger's foundry, were resumed at South Boston Point, on Wednesday, and continued till yesterday afternoon. In all it has been fired ninety three times, at different elevations, with various charges and fuses calculated to burn different lengths of time. The main experiment was tried yesterday with perfect success, with the regular service charge. Before the cannon was cast Col. Bomford, relying upon his calculations, based upon the proportions of the piece, predicted that it would carry a quarter of a mile further than any shot on record. It was loaded and elevated as follows :—25 lbs. of powder and a shell of 192 lbs., containing 7 lbs. of powder and fitted with a 36 seconds fuse and elevated to 35 degrees, being four less than the elevation at which it may be fired. The shell fell at a distance of three and a half miles, at Squantum, buried itself five feet in a rocky bed, where it exploded, tearing out a pit about twelve feet in diameter at the top, and throwing out rocks as large as a hogshead. Such a shot taking effect on a ship must destroy her. The gun is fixed on a wooden carriage, with iron fastenings and eccentric wheels, invented by Major Webber. The recoil on the firing described was twenty eight inches. The greatest distance of any shot on record is three miles and a quarter. The length of the gun is but ten feet, the usual length of a long thirty two pounder. In the course of the afternoon several discharges were made with 8 and 10 seconds fuse, and several shells were exploded at the height of about a mile, spreading their fragments over a great surface in the water below, and leaving suspended in the air a dense body of smoke, resembling a balloon, and 'nothin else.' Several gentlemen were present from the city to witness the firing, which was under the direction of Col. Bomford, of the Ordnance."

Experiments in Gunnery.

The several experiments just concluded at Woolwich Arsenal, on the relative strength of guns of different constructions, have conclusively shown the great strength of the form which was proposed by Colonel Dundas, and to test which these experiments were undertaken. Three different form of guns were used in these experiments, the object being in each case, to fire the guns until they burst. The gun known as Monk's gun, that proposed by Colonel Dundas, C. B., and a gun intermediate between the two, were the three forms used ; and the following is the result of the firing. Monk's gun fired 305 rounds with common service charge ; 17 rounds with two balls and two wads, and service charge of 10 1-2 lbs. of powder ; burst on the 18th round.—Intermediate gun fired 305 rounds with common service charge ; 40 rounds with two balls and two wads, and 10 1-2 lbs. of powder : 10 rounds with three balls and three wads, and 10 1-2 lbs. of powder ; burst on the 11th round. Colonel Dundas's gun fired 305 rounds with common service charge ; 40 rounds with two balls and two wads, and 10 1-2 lbs. of powder ; 10 rounds with three balls and three wads, and 10 1-2 lbs. of powder : 10 rounds with three balls and three wads, and 12 lbs. of powder ; 5 rounds with three balls and three wads, and 14 lbs. of powder ; burst on the 6th round.—*London Times.*

Egypt.

Accounts from Alexandria state that the Nile had risen twenty-four feet, and made immense ravages. Ibrahim and Abbas Pacha had gone into the province of Sehartie, where the floods had done great damage, the embankments being swept away. All the boats, both at Alexandria and Cairo, have been seized by Government, to transport the materials necessary for repairing the embankments. The maize harvest was entirely destroyed, and that of cotton much damaged. More than sixty villages were flooded, and if the waters did not subside, it was feared that lower Egypt would be converted into one immense lake.

The best American apples sell in London for eight dollars per barrel.

Enterprise in Georgia.

We have heretofore expressed our gratification at the indications of enterprise—the pioneer of wealth and intelligence, with liberty, prosperity and safety—in the state of Georgia, and which aims directly to the bursting of the shackles in which the ostensibly free white citizens are held in bondage in most of the southern states. The following extract from the "Southern Recorder," must be gratifying to all the friends of "light and liberty."

"We have in Georgia four colleges for the instruction of our youth in the higher branches of knowledge. These colleges are now educating between three and four hundred young men. What Southern state is doing so much in the great cause of education ? Little as Georgia is in the habit of boasting, well may she boast of her progress. She is far ahead of any Southern State, and almost of any state in the Union, both in education and internal improvements. She has more of her sons in college, and more miles of rail-road, and we may add more of the spirit of progress, both in these and almost all else for the amelioration of her condition, than any other Southern State, and equalled by but few in any quarter. She is rapidly advancing in manfactures ; in Upson ccounty there are at least a dozen prosperous factories. In Clark, we presume there are as many more. Warren, Richmond, Elbert, and other sections, are all adding to the permanent prosperity of the State, by their employment of the manufacturing arts ; and there are evidences all over Georgia of a determination on the part of the citizens to make the old state what she should be, not only the largest cotton growing State, but the most thrifty among her sisters, by the encouragement of the manufacturing arts.

The United States and Turkey.

Letters from Constantinople speak of a victory North American diplomacy has obtained in that city. Dr. Schmidt, an American missionary at Erzeroum, was lately treated in a very improper manner. Mr. Carr, Charge de Affaires of the United States at the Porte, addressed a very energetic note to the Divan, and demanded, very categorically, and with a threat of North American cannon, immediate indemnification and satisfaction for the American citizen. The Porte seemed to have no mind to become acquainted in this manner with the American men of war, and ordered the Pacha of Erzeroum immediately to pay unto Dr. Schmidt the required indemnity of £200 sterling, and to put in prison twelve of the rioters who had so ill treated the missionary.—Brother Jonathan has learned from his elder brother John Bull, how such matters are most easily settled.—*Wilmer & Smith.*

Southern Manufactures.

The last Pensacola Gazette, speaking of the Arcadia cotton factory, some twenty miles from that place, says : They turned out last week, 5000 yards of cotton cloth, and with their present machinery, can turn out 1000 yards per day. By doubling it, which is intended, they can produce twice that quantity.

The River Trade.

An Albany paper of last week says that from seventy five to one hundred vessels leave every day for New York, laden with flour, wheat, butter, cheese, &c.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

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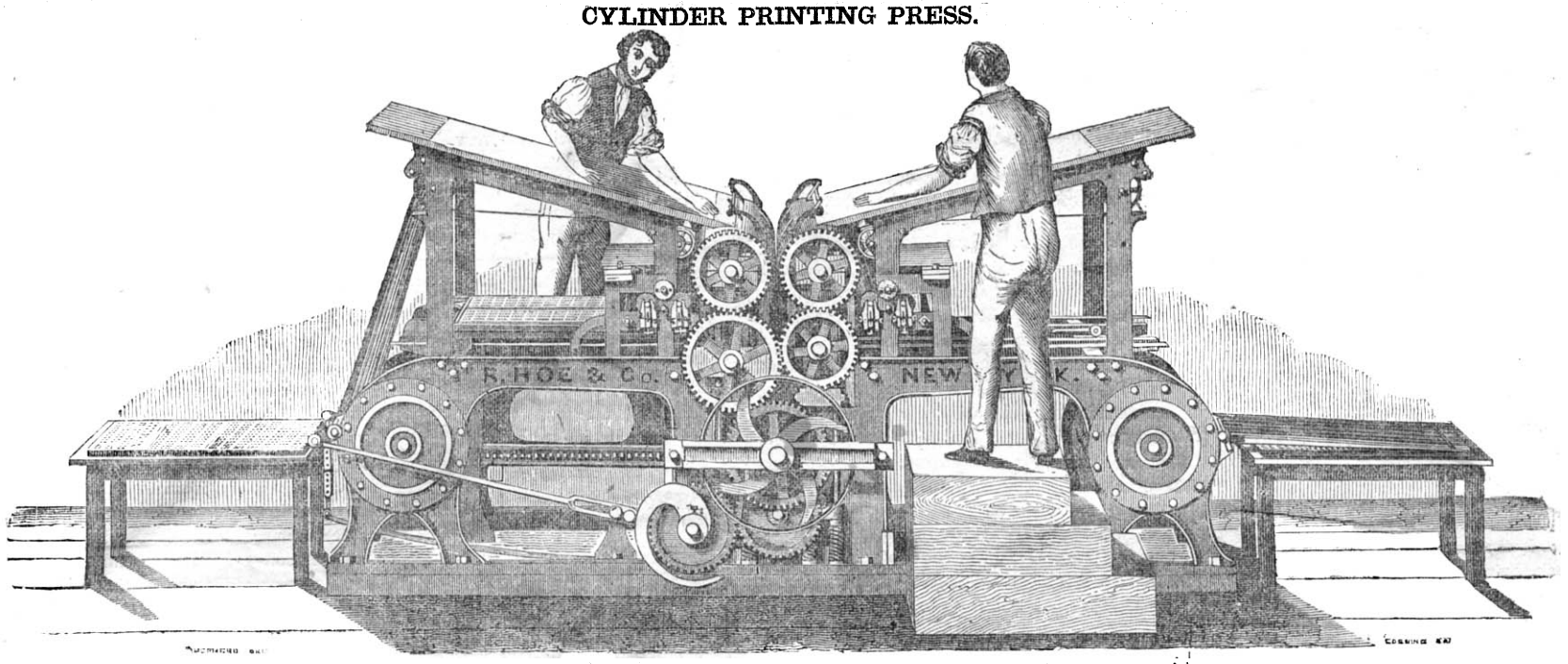


The above engraving represents one of R. Hoe & Co.'s double cylinder printing presses. They are capable of throwing off from four to five thousand impressions per hour. The types are placed on a solid, cast iron plate, or bed, the motion of which is horizontal and reciprocating. The sheets of paper being put in the proper position, are caught by means of small cast iron fingers which are attached to and revolve with the cylinder, and are thus drawn around just as the types move past; whereby an impression is given. At the instant the paper receives the impression the fingers open, and the sheet, being guided by a string, flies out at the ends of the press, and is laid upon a table. Printing by steam is an operation of much curiosity, and should be seen by all visiting the city.

CHEMISTRY.

Continued from No. 10.

AIR AND WATER.

Air—By the examinations of modern chemists, it has been shown that air is not an element, but is a compound body, consisting chiefly of two gases, oxygen and nitrogen. It also appears that the oxygen is the really active agent in relation to animal respiration, and that the nitrogen is a mere diluent in the mass, on the same principle as water may be made a diluent of spirits. We subjoin the theory of Mr. Hugo Reid on this subject:—"The air consists mainly of nitrogen and oxygen, in the proportion, if these ingredients are alone regarded, of

	By measure.	By weight.
Oxygen - -	210	231
Nitrogen - -	790	769
	1000	1000

It also contains as constant ingredients in every situation, a little carbonic acid gas and vapor of water. In volume, the carbonic acid forms about 1-2000th part, or 0.5 parts in 1000 by measure; which is equal to 0.75 by weight.—In some situations the carbonic acid is so much as 0.62 volumes in 1000—at other places only 0.37 volumes in 1000. Its proportion is greater in summer than in winter, during night than in the day time, in elevated situations than on the plains. The watery vapor is more variable in proportion. The mean is supposed to be about 10 parts in 1000 by weight, 15 by volume. The quantity is determined by the temperature, heat being the sole cause which sustains the vapor in the aerial state. The various methods of analyzing atmospheric air, proceed upon the principle of withdrawing the oxygen. This may be done by a stick of phosphorus suspended over water or mercury in a jar of air; or, which is the best mode, by the combustion of hydrogen mixed with the air to be examined. The presence of carbonic acid gas is shown by agitating a quantity of air with lime water. The carbonic acid and lime unite and form the insoluble carbonate of lime, which, diffused through the liquid renders it milky and opaque. On exposing to the air a saucer of lime water, a thin crust or pellicle of carbonate of lime will soon be found on the surface of the liquid, formed in the same manner. The quantity of carbonic acid may be judged of by passing a little solution of caustic potash into a vessel of air over mercury, and observing how much of the gas is withdrawn, this substance removing the carbonic acid; or, by adding water of baryta gradually to a large quantity of air in a bottle, and agitating. The carbonic acid neutralises the baryta; and the liquid is added until there is a slight excess of baryta, as indicated by a slip of turmeric paper being now rendered brown by it. The liquid added previously has exactly neutralized the carbonic acid; and in so doing has combined with an equivalent proportion of that substance, the quantity of which is thus indicated. The presence of watery vapor in the air may be demonstrated by exposing chloride of calcium or caustic potash. It absorbs the moisture, melts, and is found to have increased in weight. Strong sulphuric acid abstracts the moisture from the air, increasing in bulk and becoming weaker. The dewpoint hygometer also indicates the presence of moisture in air, and points out the precise quantity. The four bodies which enter into the composition of the air are regarded as mechanically mixed, not chemically combined with each other. It is known from the nature of aerial bodies that they would mix. thus, though not combined—that they would not separate and arrange themselves according to their respective specific gravities—but each would be diffused through the whole space to which it had access. The only two likely to be chemically combined are the nitrogen and oxygen; and the great facility with which the oxygen is separated from the nitrogen, as well as not being in equivalent proportions, shows that they are not in close chemical union. The oxygen is the chief agent in the important operation of breathing or respiration of animals. Each individual is supposed, on an average, to breathe about twenty times every minute—to take in about sixteen cubic inches of air (12-8 by 3-2 oxygen) at each inspiration—to return nearly the whole of the nitrogen (12-8 cubic inches) and 4-5ths of the oxygen (2.56) cubic inches and to replace the remaining 5th of oxygen by an equal volume of carbonic acid (.64 cubic inch.)" The oxygen of the air is the great means of procuring heat and light, by its action with combustible bodies.

Water.—Water was at one period believed to be a simple element in nature; but this supposition has given way before the examination of chemists. Water is now known to be composed of oxygen with hydrogen gas, in the relative proportions of 8 of oxygen to 1 of hydrogen. Into these substances can it be resolved by the action of electricity or fire, but at such a cost as to render the process unsuitable for economic purposes. Pure water in chemistry, is called an oxide of hydrogen. It may be formed by exploding a mixture of oxygen and hydrogen in a tube by the energy of electricity. Sea water contains, in 1000 parts, about 46 of foreign matters, chiefly chloride of sodium. Its specific gravity is 1.027. Mineral waters, similarly, contain various foreign bodies; as, for example, carbonated waters, which contain carbonic acid; sulphureous waters, which hold sulphuretted hydrogen; and chalybeate waters, which contain sulphate or carbonate of iron. Water may be impure either by the chemical union of these and other foreign bodies, or by the mechanical mixture of substances. The latter may generally be removed by filtration, but when the union is chemical, distillation and other processes are requisite to produce a pure liquid. In nature, water is never altogether pure. When it contains a chemical compound of lime, it is said to be hard, and in this condition it decomposes the soap which is employed with it.

(*To be continued.*)

Notes for a Tourist.

"Madam," said a free-spoken, warm-hearted, enthusiastic and little quizzical son of old Kentucky, while paying his devoirs to one of the famous tourists of America, "Madam, you should have been born in America; the greatest country in the know world; nature has clustered all her stupendous and dazzling works upon this land, and you should be among them. We have got the greatest men, the finest women, the longest rivers the broadest lakes, the tallest trees, the widest prairies, the highest waterfalls, and the biggest hearts in all creation. Madam go and see the falls of Niagara. May the lord take a liking to you my dear *ma'm*, if I didn't think I'd waked right up in futurity when I first *seed* that big slantendicular puddle! (Slantendicular's an alge-*bra* word, ma'm you mayn't know it.)—Why madam, I could tell you something about them falls—but you musn't put it in your book, 'cos nobody'll ever believe it. The people that live round about there all lose speech and never hear one another speak for years, for the noise of the cataract! Fact madam true as that's a pencil and note book your are taking out of your pocket. Why, there's a man lived down there ten years, and he got so *deef* he never knew a man was speaking to him till he had a pail of water poured down the back of his neck! When you go to see the falls, ma'm you must do all the talking you want before you get within twenty-five miles of them, for after that not a word of any kind can be heard. Then, madam, you should go and see the great cave in Kentucky, where the bats hibernaculate in countless millions.—There is not such another hole in the ground to be found on the face of the earth, or, rather, under the earth. Madam if you go back to England without seeing our mammoth cave you'll put your foot in it,—no, beg pardon, excuse me—that's quite *un*possible—but you'll leave a pretty big hole in the book your're going to write. There's no end known to it, madam, and there's a salt water lake in the middle of it twenty-five miles broad. One of the rooms is called the "Antipodean Chamber," from the unpronounceable fact that a man can walk just as easy on the ceiling as upon the floor; and in the same apartment there's a natural fountain of pure brandy!"

It is confidently stated that two-thirds of the men killed in the American army at Monterey, were Irishmen. What will the Native Americans say to this?

Importance of Ventilation.

It is estimated that an assembly of five hundred people give off in the course of two hours, fifteen gallons of water into the air. In a close hall or church, much of this mositure, is breathed over and over, and the raiment of the congregation, as well as the walls and ceiling of the house will become moist or damp, whereby the health of the people is seriously exposed to say nothing of the deleterious effect of such impure air upon the lungs. Many wise men have recommended ventilation in such cases, but without proposing any available method; for doors and windows can hardly be said to be available in severe cold weather. In a few instances, currents of heated air from a furnace in the basement have been introduced; but this mode is attended with considerable expense, and is not in all cases, nor even generally practicable; and moreover, is less agreeable than a stove in view. We would therefore recommend the introduction of tall cylindrical vertical stoves with an air pipe in the centre, into the bottom of which a current of fresh air may be introduced from outside the hall, passing under the floor to the stove, and liberated at a heighth sufficient to insure a full draught. This method will not only advance economy by distributing in a hall a larger proportion of heat from the burning fuel, but will clarify the atmosphere by producing and maintaining a constant draught or rather a blast of vitiated air upon the fuel in combustion; for it will be readily understood that by the introduction of a free current of fresh air into the upper part of a close room, an equal quantity of air from the low-section, which has become heavy by the carbon of the breath, must be driven off by the smoke pipe. Stoves of this construction are easily made, and we hope to see them extensively introduced.

Politeness.

There can be no such thing as true politeness without a sincere desire to please; and there can be no true desire to please, without the sentiments of love and goodwill to all; anything short of this, is affectation, a species of hypocrisy. And there can be no universal sentiment of goodwill in the heart of man, but by the Divine Influence, which is only given through the christian faith. Therefore Christianity constitutes the only genuine principles of politeness.

Singular Theology.

A preacher said, that among the errors of the times he often meets with opinions and sentiments about religion and which when thrown together would compose the following creed:—

If you seek religion you'll never find it; when you get it you'll never know it; if you know i you hav'nt got it; if you've got it, you can never lose it, and if you lose it you never had it.—*Nashville Advocate.*

Wreck of the Atlantic.

The news of this deplorable and heart rending casualty, which occurred on Friday morning, last week, not having reached this city in season for our last number will be but briefly noticed in this, as we cannot doubt that our readers generally will have learned the particulars by other papers before this reaches them. The Atlantic left New London at 2 o'clock on Thursday morning, with about 90 persons on board, and on passing into the sound encountered one of the most terrific gales and raging sea that has been known for many years, but which were nobly buffetted for about twenty miles when her steam box was parted by a heavy sea, and the anchors were thrown out, and every possible measure taken for her safety. But, notwithstanding her three anchors and the cutting away of her smoke pipes, pilot house, bulkheads and wheel boxes and throwing over her coal and freight, so violent was the gale or hurricane that she dragged her anchors twenty-two miles in 24 hours and on Friday morning she parted her cables and went ashore on Fisher Island, and in five minutes was broken to fragments, her passengers and crew being thrown into the foaming breakers amongst the floating timber and fragments. During those five minutes about forty of the company including Captain Dunstan, perished. The crash, the whistling of the wind, the roar and dash of the angry waters, and the cries of the affrighted and hesitating, formed, it is asserted, one of the most awful exhibitions of horror and suffering the imagination can paint.

The pieces of the wreck were dashed about with great violence, and many of the persons saved are dreadfully wounded by being knocked against them—thrust among sharp rocks or lashed by the breakers. The killed, most of them, were literally *crushed to death.*—During this conglomeration of destruction the ice formed rapidly to the thickness of two inches, and the cold was intense. Had the vessel's bow touched the breakers not a life would have been spared. Although the terror that reigned was supreme—although the doomed ones had anticipated their fate for hours—the selfishness usually witnessed in such scenes did not prevail, nobody attempting to save his life at the expense of another's.

The boat was provided with an abundance of life-preservers, without which it is believed that no person would have escaped. There was a good heart in Capt. Dunstan's bosom, for when they were drifting at anchor with flag at half mast he ordered the colors to be removed, saying that they would only induce the Massachusetts and Mohegan to venture into danger without the posibility of rendering any assistance.

The rescued were treated with all humanity and courtesy, everything that was needed being given with unsparing generosity.

We cannot avoid the reflection that Thursday being the day of Thanksgiving festival, it is probable that most of the passengers were on their way to join their friends in the city on the occasion, and that they experienced at the commencement of the voyage lively anticipation of joyful associations; but the day was a day of terror succeeded by death and mourning. The Atlantic had cost $140,000. and was insured for $90,000.

Late from Mexico.

On the 13th ult. Com. Conner appeared with his fleet before Tampico and made preparations to attack the place. The Mexican troops evacuated, and on the 14th the citizens surrendered the town without any opposition. The American troops belonging to the squadron disembarked and took possession, and it is now in their hands.

By an arrival from Vera Cruz we are informed that the British Minister had compelled Santa Anna to refund the two million sterling stolen from the Conducta.

By despatches received at Vera Cruz we learn that the number of Mexicans killed at the taking of Tobasco was eighty.

Transcendentalism.

O. A. Brownson, once a Transcendentalist, thus takes off his old associates and friends:

"But after all, what is the real sum and substance of Transcendentalism, this latest and noblest birth of time, as its friends regard it, and from which we are promised the universal *palingenesia* of man and nature,—what is it, when reduced to its simple, positive teachings? We have been led through tomes of metaphysical lore; we have been allured by brilliant promises of a recovered Eden; we have been flattered by glowing descriptions of our god-like powers, affinities, and tendencies; we have been transported by the assurance that we may dispense with priests, prophets, intercessors and mediators, and of ourselves approach the Infinite One face to face, and drink our supply at the primal Fountain of Truth itself; but, now, having lingered till the ascending sun has exhaled the dew-drops and exhausted the gems of precious stones which sparkled in rich profusion at our feet, what is the real and positive value of what has so long detained and charmed us? Things are what they are; man is what he is, and by a right use of his faculties may be, do, and know all he can be, do and know. So far as we are wise, good, and loving, so far as we have and know wisdom, goodness, love; we have and know God, in so far as he is wisdom, goodness, love. He who knows more of these knows less. If the possession of wisdom, goodness, love, be inspiration, then he who has the most wisdom, goodness, love, is the most inspired—and to be more inspired he must get more wisdom, goodness, love. To be more inspired, he must be more inspired. If white be white, then white is white; if black be black, then what is black is black, if two be two, then two are two. Or, in two grand formulas from Mr. Parker, "Goodness is goodness," and "Be good and do good," and —you will be good and do good! If this is not the whole of Transcendentalism, when divested of its denials, its blasphemy, and its impiety, and reduced to its simple dogmatic teachings, then we have given days, weeks, months and years, to its study to no purpose. Stated in plain and simple terms, it is the veriest common-place imaginable. It is merely "much ado about nothing," or "a tempest in a teapot." Dressed up in the glittering robes of a tawdry rhetoric, or wrapped in the mystic folds of an unusual and unintelligible dialect, it may impose on the simple and credulous; but to attempt to satisfy one's spiritual wants with it is as vain as to attempt to fill one's self with the east wind, or to warm one's freezing hands on a cold winter's night by holding them up to the moon. Yet its teachers are the great lights of this age of light, before whom all the great lights of past times, pale as the stars before the sun. Men and women, through some mistake not in a lunatic hospital, run after them with eagerness, hang with delight on their words, and smack their lips as if feeding on honey."

Taylor's Camels.

It is again said that Government has employed Capt. Taylor and his India rubber camels to carry our vessels across Tampico bar. That place having been already captured, however, the camels must seek employment elsewhere.

General La Vega Exchanged.

A letter from Gen. Scott to Gen. La Vega and his companions informed them that they had been exchanged for Captain Carpender and the crew of the U. S. brig Truxton, tendered them a conveyance from Pensacola to Vera Cruz, on board a United States vessel.

Indian War.

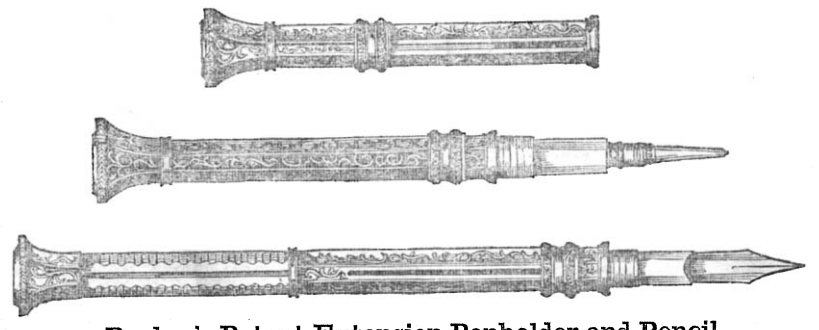
The intelligence recently received from different sections of the frontier, says the Houston Telegraph, indicates but too plainly that another Indian war is about to be kindled with several of the Prairie tribes.

Land Lost.

It is stated that four or five acres of land belonging to a Mr. Leydard, on the east bank of the Cayuga Lake, sunk a few days ago, and have entirely disappeared.

Yankee Contractors in Canada.

All the contractors on the Canada portion of the rail road from Montreal to Portland, are Yankees.



Bagley's Patent Extension Penholder and Pencil.

THIS is the most compact, complete, convenient and useful pocket companion ever offered to the public. The multiplicity of its usefulness and the smallness of its size, renders it a perfect MULTUM IN PARVO.

In the short space of 2 3-4 inches is contained a Pen, Pencil, and a reserve of leads, and by one motion slides either the pen or the pencil out and extends the holder to six inches, which is but little more than half the length, when shut up, of the common pen holder, but when extended is one fourth longer. This article is secured by two patents, and the Manufacturers are now ready to receive orders for them in any quantity, either of Gold or Silver, together with his celebrated ever pointed Gold Pens, which need no proof of their superiority except the increased demand for the last six years, and the numerous attempts at imitation.

A. G. BAGLEY, No. 189 Broadway.
New York, Sept. 1, 1846. o24 tf

Graham's

American Monthly Magazine for December, appears in its usual splendor, being embellished with three very brilliant and interesting engravings.—"Rebecca," a fine steel-plate landscape view of the city of Columbus, and a more superbly finished plate of fashions than is often seen: By G. R. Graham, 129 Chesnut st., Philadelphia; Tribune Buildings, New-York.

Watch Left.

A watch was left at this office to be plated with gold about two weeks since, by some person belonging to one of the Norwich Line steamboats. From the circumstances that it has not been called for, we are led to suspect that the man who left it, might have been lost from the Atlantic; wherefore we give this notice that his friends or the person who sent the watch may know where it is.

The Plumb-and Level Indicator.

Some of these new, elegant, useful and convenient articles are now finished, and may be examined or procured at this office. We feel assured that no carpenter, ship-builder, mason or engraver will be contented without them.

ADVERTISEMENTS.

☞ THIS paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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One square, of eight lines one insertion,	$ 0 50
" " " " two do.,	75
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TERMS:—CASH IN ADVANCE.

MONSON ACADEMY.

THE winter term of this institution will commence on WEDNESDAY, the 2d day of December, and continue eleven weeks.

TUITION is from $3,50 to $4, 50 per term. Board is $1,50 per week.

C. HAMMOND, Principal.
Monson, Mass., Nov. 14, 1846. n28

BUTLER & DEMING,
ELECTRO PLATERS AND GALVANISERS.
No. 98 Nassau st. (4th story.)
n28. NEW YORK.

Branwhite's Patent Color Discriminator.

☞ This ingenious invention consists of a neat box in which are arranged in a scientific manner, all the most brilliant colors, THIRTY FIVE IN NUMBER, represented by as many convex discs of the FINEST SILK. Each disc bears a number referring to an explanatory scale. The attention of storekeepers, milliners, and indeed all who have occasion to vend or purchase colored articles of any kind, is respectfully invited to this new and valuable discovery. More trouble can be saved by its use in ONE DAY than four times the amount of its cost. For sale, wholesale and retail, at the office of the Scientific American, 128 Fulton st., 3 doors from the Sun Office.

They may be sent by Express, to any part of the United States. oct31 tf

Engraving on Wood

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CURIOUS ARTS

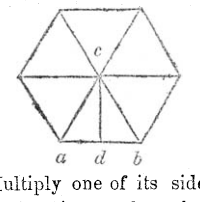
The Manufacture of Glass.

Concluded from No. 9.

Flint glass is thus designated from calcined flints having been formerly used in its composition, this is now replaced by fine sand. The term flint glass is now applied to all glass into the mixture of which lead enters, and is used in the manufacture of table glass, &c. In the manufacture of flint glass the circular furnace is used, the pots surrounding the grate-room ; on either side of the pots are flue holes which pass throngh the pillars, the smoke being carried up by flues outside these. The heat thus reverberates from the crown of the furnace, and is drawn round the pots previous to passing through the flue holes. The melting pots are covered in to protect the glass from dust, which would affect the color. The materials used in flint glass are sand, red lead, litharge, carbonate and nitrate of potash, arsenic and manganese, and the greatest care is taken in the selection of them, the beauty of the glass depending mainly upon the quality of the materials. The best sand comes from Alum Bay, Isle of Wight, this is carefully washed and dried before using. Red lead or litharge, assists as a flux and gives density, brilliancy and ductility—the latter quality being particularly required in flint glass. It ls, perhaps owing to the superior quality of the oxides of lead prepared in England that we are in advance of other nations in the manufacture of fine flint glass. The carbonate and nitrate of potash are used wholly as fluxes, soda though more active is never used where quality is required, as it affects the color. For almost every purpose, the best glass of every description is that which contains the greatest amount of silicia. If the sand, lead and alkali, even though the quality were neyer so pure, were melted, the glass which would be produced would not be colorless, but of a pale green, and this, in all probability, is not so much the result of impurities as the deoxidising effect of the fusion. To obviate this it is necessary to use the oxide of manganese, which by supplying oxygen retains the different substances in that state of oxygenation necessary to a colorless glass ; if too much manganese be used the color is slightly purple, designated by the glassmakers 'high,' the green tint, again, is called 'low;' in other words the glass is high when it contains more than sufficient oxygen, and low when too little. Minute quantities alone are necessary ; from a quarter to half of an ounce per cwt. is sufficient. Arsenous acid is sometimes used in flint glass, its use being to expel the carbonic acid gas present in the materials; if too much is used it gives opacity,

Glass may be considered, unfortunately for science, an imperfect body. The principal imperfection, more especially of flint glass, arises from what are called cords or striæ in the glass, which give to it the appearance of alchohol and water imperfectly mixed; through these striæ the rays of light will not pass, but are diverged and broken. This defect is attributed to the difference in specific gravity, or want of homogeneity of the particles; this, no doubt, is true; but the question is, to what cause is this attributable ? I would suggest, that it may arise from the unequal distribution of heat to the materials during fusion and whilst in a fluxed state, and to the particular action consequent thereupon. The number and variety of articles manufactured in flint glass are great, and require considerable practical experience on the part of the workmen. It is impossible to describe the manner of operating, which appears even to those who have often seen it, most magical. It is certainly surprising to see an apparently opaque and fluid body in a moment become transparent and solid, and, whilst undergoing this rapid change, to see it take beauty and form. The substances used for producing colored glass, are the metallic oxides, the quantity being proportioned to the depth of color we desire to obtain. For blue glass we use oxide of cobalt; this produces a rich color : the material however, being expensive, it is seldom used by the glassmaker alone, but generally with an equal quantity of manganese ; this material affects the richness of the color. Green is obtained from the oxides of copper and iron, mixed, the protoxide of copper, and the peroxide of iron; equal quantities may be used, the proportions being varied according to the tint desired to be obtained : the copper produces a blue-tinted green, and the iron the yellow tint. Purple is obtained from the oxide of manganese; the purer this substance is, the finer will be the color. The pyrolucite already referred to, especially when used in small quantities, gives a beautiful and delicate amethyst color. Ordinary yellow is got from carbonate of iron and oxide of manganese.—Ruby is obtained from the oxide of gold, called the cassius precipitate; it is a color which is neither obtained or retained with any certainty —in fact, the modern glassmaker is quite at a loss for this color. There can be no doubt the ancients manufactured ruby of a much finer color than any now made, from sub-oxide of copper; this art has been lost for centuries; the difficulty is, the preventing this substance from peroxidizing. The oxides of uranium produce beautiful tints in yellow and green. Copper scales give azure blue; oxide of chromium, emerald green. Opaque glass is produced by the addition of phosphate of lime, arsenic, and other substances. The addition of many of the metallic oxides renders glass less ductile; and in making use of these it is well to employ an additional quantity of lead. We often hear of the superiority of the color of ancient sheet glass to the modern, and are bound to conclude, when we see, particularly in church windows, the difference, that there is good ground for the assertion. With the exception of ruby, the modern colors are all finer than the antique. I speak of body colors —that is, glass made of colored mixtures, called pot metal ; but this is seldom used, all our modern church windows being made with white glass stained with metallic colors; this saves trouble and expense in the fitting. Glass of various colors in the same piece is obtained by casing one metal or glass with another. A small quantity of one color having been gathered, it is blown into a small ball, and dipped into a pot of a different color; this being rolled on an iron slab, so that an equal thickness of the second covers the first, the ball is a trifle enlarged by blowing, and may be dipped into a third and fourth color. Care must be taken that the character of these different glasses exactly agree, that the contraction in cooling may be alike.

To Find the Area of a Polygon.



Rule.—Multiply one of its sides into half its perpendicular distance from the centre, and this product into the number of its sides.

It is evident on inspection that a regular polygon contains as many equal triangles as the figure has sides. Thus the hexagon, represented in the cut, has six triangles, each equal to *a, b, c*. Now the area of *a, b, c*, is equal to the product of the sides *a b* multiplied by the half of the perpendicular *c d*. The area of the whole, therefore, is equal to this product multiplied by 6, the number of the sides. The same rule will apply in ascertaining the area of regular polygons of any number of sides.

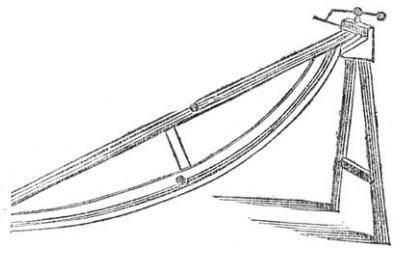
Terrestial Electricity.

A French electrician has succeeded in obtaining from the earth an electrical current sufficient to give a shock, a spark, and to decompose water. The apparatus consists of hollow iron cylinders, covered with seven coils of copper wire. The cylinders are rapidly rotated by means of wheel work, and the spark is produced by breaking contact with mercury. The rotation must take place round a line perpendicular to the plane of the magnetic meridian.

Iron Cements.

Cracks in stoves and stove-pipes are readily closed by a paste made of wood ashes, common salt and water. For a more permanent and durable cement, that may be used in steam engine boilers, mix together iron filings, sal ammoniac (muriate of ammonia) and sulphur, in the proportion of three, two and one.

Inclined Plane and Curve.



In this figure is represented an apparatus for illustrating a curious fact in natural philosophy. Both the inclined plane and inclined curve are constructed with ledges or elevated edges for the purpose of guiding the balls that may be rolled down the inclined surfaces.—The motion of a ball descending the inclined plane is constantly and uniformly accelerated, according to the time occupied in its descent; and its velocity at every stage of its descent is the same as it would have acquired by descending an equal vertical distance, if let fall perpendicularly : consequently the time occupied in its descent will bear the same proportion to the time which would be occupied by a perpendicular descent, as the length of the inclined plane does to the vertical distance. Some might suppose that the same time would be required for the ball to roll down the inclined curve ; but it is far otherwise. For the upper section of the curve being the steepest, the inertia of the ball is more suddenly overcome by gravity, whereby the ball received an impetus which accumulating in its progress, carries the ball to the bottom much quicker than it descends by the regularly accelerated motion on the inclined plane. If the curvature and inclination of the inclined curve is such that the bottom thereof has a perfectly horizontal direction, the time required for the descent of a ball will be the same, whether the ball descends from the head of the curve, or from any point between that and the bottom : and if several balls are placed on different parts of the curve at the same time, they will all reach the bottom together. This is a curious experiment, and illustrative of important scientific principles.

Mr. Pocock's Kite Carriages.

This unique and ingenius invention of Mr. G Pocock, was witnessed by many of the members of the British Association, lately, on Clifton and Durdham Downs, near Bristol, and called forth their unqualified approbation. The starting place was opposite the Observatory- The car, containing four persons, was drawn by two kites—the pilot kite ten feet in length of standard, the draft kite, twelve feet. The party passed through the turnpike with all the privileges of royalty, toll free, and proceeding across Durdham Downs, ended their journey near Westbury. The general pace was about ten miles an hour. Two days after this first display, four carriages were on the Downs, two of which were in constant use for several hours. During the day, about one hundred ladies and gentlemen, many of them foreigners, had an opportunity of riding in these novel vehicles. When the wind was active the pace was about twelve miles an hour. Many of the gentlemen expressed their surprise at the power of the kites, and were especially gratified at witnessing the scientific management of them, for they had not conceived that every angle or obliquity of surface could be given to the kites which can be presented to the wind by the varied setting of a sail, or the mast of a boat. From this discovery many judicious remarks were made on the various use to which the kites, or buoyant sails might be applied. Ideas, new even to the author of the invention, were suggested.—The general impression was, that it was peculiarly well adapted for sea service, especially in case of shipwreck, as life preservers, as auxilliary sails, and the making of signals.—It is hoped, therefore, that this hitherto uninvestigated branch of science will be more fully developed, and applied to beneficial purposes. The most mortifying occurrence of the day was, that, after Lord Courtenay had minutely examined the whole apparatus, and tried every brace line with his own hand, to prove its use, and to ascertain the effects produced on the kites, when his lordship had taken his seat for a ride, the wind became so feeble that the general pace was not more than six miles an hour.

On a subsequent occasion an immense kite of thirty feet length in the standard, was exhibited on the Downs, the power of which was adequate to the drawing of four carriages laden with persons. The most speedy rate of the carriages was eighteen miles an hour.

Though not scientific to start a new theory as to the applicability of these kites, we were delighted with the control which Mr. Pocock possesses over a team some hundred yards above him. By means of reins, (or as he terms it, brace,) he is enabled to bring the kites round to any due point, even almost to a right angle with the road he is travelling, and can put them on an edge with the wind, or allow them its full force. Even the tail is pressed into the service of propulsion, being a series of linen cones, each of which catches what sailors so often long for, "a cap full of wind."—*London Penny Mag.*

Magnifying Daguerreotypes.

A New Orleans paper expresses great admiration at the appearance of a well wrought daguerreotype portrait when viewed through a common magnifying glass. There are but few comparatively, however, that will bear the test of a powerful magnifyer, but we have one taken by Gurney, so perfect in form, shade and color that when sufficiently magnified to produce the requisite apparent size, might be readily mistaken for real life. No painter could begin to approach such perfection.

Successful Gun Trap.

A large bear was killed at St. Peter's Bay, N. H., by the discharge of a gun, which had been placed for the purpose with a piece of meat on the muzzle attached by a string to the trigger.

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